CLAIMS

1. A semiconductor apparatus comprising:

a semiconductor chip including a power semiconductor device constructed by using a wide band gap semiconductor;

a base material made of an electrically conductive material and connected to a part of a face of said semiconductor chip;

a heat conducting member in contact with a part of the face of said semiconductor chip; and

an encapsulating material for encapsulating said semiconductor chip and said heat conducting member,

wherein a part of said base material is extruded outside said encapsulating material and works as an external connection terminal.

2. The semiconductor apparatus of Claim 1,

wherein said power semiconductor device has a region where a current passes at a current density of 50 A/cm^2 or more.

3. The semiconductor apparatus of Claim 1 or 2,

wherein said encapsulating material is made of a resin or glass, and

said heat conducting member is exposed from said encapsulating material.

4. The semiconductor apparatus of Claim 3, further comprising a radiation fin that is in contact with said heat conducting member and is extruded outside said encapsulating material.

5. The semiconductor apparatus of Claim 1 or 2, further comprising a film for covering said encapsulating material.

6. The semiconductor apparatus of Claim 5, further comprising a radiation fin opposing said heat conducting member with said film sandwiched therebetween.

7. The semiconductor apparatus of any of Claims 1 through 6,

wherein a first intermediate member made of an electrically conductive material and a second intermediate member made of a material having lower heat conductivity than said first intermediate member are provided between said base material and said semiconductor chip.

8. The semiconductor apparatus of any of Claims 1 through 7,

wherein a contact area between said semiconductor chip and said base material is smaller than a half of an area of said semiconductor chip.

9. The semiconductor apparatus of any of Claims 1 through 8,

wherein said power semiconductor device is a vertical element, and

said semiconductor apparatus further comprises another semiconductor chip that is stacked on said semiconductor chip and a part of which is connected to said base material.

10. The semiconductor apparatus of any of Claims 1 through 9,

wherein said external connection terminal of said base material is constructed to be mounted on a print wiring board.

11. The semiconductor apparatus of any of Claims 1 through 10,

wherein said wide band gap semiconductor is SiC.

12. A semiconductor apparatus comprising:

a semiconductor chip including a power semiconductor device constructed by using a wide band gap semiconductor;

a base material made of an electrically conductive material and connected to a part of a face of said semiconductor chip;

a heat conducting member in contact with a part of the face of said semiconductor chip;

a vessel in contact with said heat conducting member and encapsulating said semiconductor chip, said base material and said heat conducting member; and

an external connection terminal electrically connected to said base material and extruded from said vessel.

13. The semiconductor apparatus of Claim 12,

wherein a region around said semiconductor chip, said base material and said heat conducting member within said vessel is filled with glass, a resin, an inert gas or a gas reduced in pressure.

14. The semiconductor apparatus of Claim 12 or 13, further comprising a radiation fin opposing said heat conducting member with a part of said vessel sandwiched therebetween.